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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/664,931	09/22/2003	Gee-Sung Chae	041993-5233	5116

9629 7590 06/18/2007
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EXAMINER

KIM, RICHARD H

ART UNIT	PAPER NUMBER
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2871

MAIL DATE	DELIVERY MODE
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06/18/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/664,931	Applicant(s) CHAE ET AL.	
	Examiner Richard H. Kim	Art Unit 2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 December 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,4,7-14,71 and 72 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,3,4 and 7-11 is/are allowed.
- 6) ☒ Claim(s) 12,13 and 72 is/are rejected.
- 7) ☐ Claim(s) 14 and 71 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claim 14 is objected to because of the following informalities: The claimed limitation of “a TiO₂ layer having a hydrophilic properties” is contradictory. The claim is specific to claim a “*metal* masking layer”. However, TiO₂ is not a metal but a dielectric. Appropriate correction is required.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. Claim 12 rejected under 35 U.S.C. 102(e) as being anticipated by Zhang (US 6,800,873 B2).

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Zhang discloses a device comprising a plurality of gate lines (101) and data lines (102) to define a plurality of pixel regions (103); a thin film transistor in each pixel region (110); and a metal masking layer (311) in the thin film transistor.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang in view of Jung et al. (US 6,549,249 b2).

Zhang discloses the device previously recited, but fails to disclose that the metal masking layer includes Ti.

Jung et al. discloses a metal masking layer including Ti (col. 21, line 49).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ a metal masking layer since Ti is well known in the art to be a material used as a data line, or gate line due to its conductive properties.

5. Claim 72 is rejected under 35 U.S.C. 103(a) as being unpatentable over Satake (US 6,801,267 B2) in view of Fujikawa et al. (US 6,297,519 B1).

Satake discloses a device comprising a plurality of gate lines (609) and data lines (602) crossing each other to define a plurality of pixel regions; a plurality of thin film transistors, each

disposed in one of the pixel regions, each thin film transistor including: a gate electrode (606a) on a first substrate; a gate insulating layer (602) over the first substrate; a semiconductor layer (604) on the gate insulating layer; and source/drain electrodes on the semiconductor layer (col. 13, lines 34-37); a passivation layer (608) over the first substrate including the source/drain electrodes of the thin film transistors; a plurality of pixel electrodes (610), each disposed on one of the pixel regions; a TiO₂ layer (615) on at least one of the passivation layer of the thin film transistor or the pixel electrode. However, the reference does not disclose at least one Ti layer on the semiconductor layer.

Fujikawa et al. discloses at least one Ti layer (15) on the semiconductor layer.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ a Ti layer on the semiconductor layer since one would be motivated to prevent element performance from being degraded by AL diffusion (col. 1, lines 58-60).

Allowable Subject Matter

6. Claims 1, 3, 4, 7-11 allowed.
7. The following is a statement of reasons for the indication of allowable subject matter:
The prior art of record, taken alone or in combination, fails to teach or disclose a liquid crystal display device comprising a TiO₂ masking layer formed in at least one of the thin film transistors or at least one of the passivation layer and the pixel electrode.

8. Claims 14 and 71 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record fails to teach or disclose that the metal masking layer includes a Ti layer, and a TiO₂ layer having a hydrophilic surface; and that the metal masking layer includes Ti and is disposed on upper surfaces of each of a gate electrode, a semiconductor layer and source/drain electrodes of the thin film transistor.

Response to Arguments

10. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard H. Kim whose telephone number is (571)272-2294. The examiner can normally be reached on 9:00-6:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571)272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Richard H Kim
Examiner
Art Unit 2871


David Nelms
Supervisory Patent Examiner
Technology Center 2800

RHK